



KEMENTERIAN KESIHATAN MALAYSIA
INSTITUT PENYELIDIKAN KLINIKAL



*Celebrating
the past,
Embracing the
future*

**YEARS OF EVOLUTION:
FROM NCRC TO ICR**



B4

Institut
Penyelidikan
Klinikal
(ICR)

Institute for Clinical Research

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The background is a solid dark blue. It features several decorative elements: a large, light blue wavy line on the left side; a grid of thin, light blue lines in the top right corner; and another set of light blue wavy lines at the bottom right. The text is centered in the middle of the image.

*Celebrating
the past,
Embracing the
future*

Foreword

Minister of Health

Affordable healthcare driven by data and science is fundamental for ensuring better population health outcomes and better quality of life. Research can improve equity by increasing healthcare access, addressing unmet needs, and providing personalised novel therapeutics. This is where the Institute for Clinical Research (ICR)—established to meet the clinical research needs of the Ministry of Health (MOH) Malaysia—is driving clinical research of benefit to patients.

Clinical research excellence propelled by ICR continues to not only inform MOH's decision-making but also provide evidence to improve health outcomes for practice translation. The recognition accorded to ICR through impactful research has placed Malaysia on the global map for researchers—from industry and academia—to pursue collaborative research linked to clinical trials.

From the first Clinical Research Centre (CRC), formally established in 2000, ICR's network of CRCs is now at 37. Remarkably, two sites are accredited by international standards to be able to conduct First-in-Human clinical trials. Such is an attestation to MOH's commitment to building research infrastructure and human capital to sustain a resilient clinical research ecosystem for the nation.

This book captures a glimpse into an institutional force within the MOH. In the decades ahead, I hope for ICR to strive for excellence by enhancing capacity building, transforming the healthcare ecosystem with evidence-based recommendations, capitalising on digital healthcare advancements, and addressing the needs of research in Malaysia.



Khairy Jamaluddin

Foreword

Director-General of Health



The Ministry of Health (MOH) healthcare system integrates research evidence to provide high-quality treatment centred on value-based medicine and data-driven clinical decision pathways. Research by the Institute for Clinical Research (ICR), National Institutes of Health (NIH) Malaysia and its Network of 37 Clinical Research Centres (CRCs) has contributed to MOH policy-making and practice guidelines for better patient outcomes. The Ministry takes pride in the ICR for developing clinical research training and standards, global research collaborations, and prestigious research publications—all accomplished in such a short time.

On behalf of the Ministry of Health, I express my gratitude to past and current directors, lead clinicians, and researchers at ICR and CRCs for their dedication to advancing clinical research in Malaysia and driving research that matters to patients.

This book serves as a record of how ICR has evolved and grown over time and a testament that perseverance breeds success. Congratulations to ICR for 22 years of accomplishments. We look forward to ICR continuing to advance excellence in research in the coming years.

Tan Sri Dato' Seri Dr. Noor Hisham Bin Abdullah

Message

Deputy Director-General of Health (Research and Technical Support)

My journey with Institute for Clinical Research, ICR (previously called National Clinical Research Centre, NCRC) began as the Head of CRC Hospital Sultanah Bahiyah Alor Setar established in 2006. I feel honored to be part of the evolution from NCRC to ICR over the past two decades.

Housed within the National Institutes of Health (NIH), ICR and five other research institutes lead the research endeavours of the Ministry of Health Malaysia. Championing clinical research, ICR has impacted clinical practice to bring forth betterment in health outcomes. Through the expansion of its own Network of CRCs and extensive collaborative strength, ICR has become a clinical research force within NIH and the nation.

I congratulate ICR for producing this book that records the essence and achievements of ICR. May the readers be inspired by the story of ICR and may it spark enthusiasm and motivation among researchers to excel in their research undertakings.

My hope is that, as one of the institutional pillars of the NIH, ICR continues on an upward trajectory in contributing to patient and population health.



Datuk Dr. Muhammad Radzi Bin Abu Hassan

Message

Manager National Institutes of Health (NIH)



Under the umbrella of the National Institutes of Health (NIH), six research institutes including the Institute for Clinical Research (ICR) operate as the research arm of the Ministry of Health Malaysia. Each research institute strives for impactful research on their focus areas that propagates evidence-based medicine with the aim to enhance the health and well-being of the nation.

The COVID-19 era is a testament to the strength of all research institutes at NIH to produce timely and meaningful scientific evidence that guides health policy and practice. Notably, research led by ICR generated evidence to inform COVID-19 clinical management and immunisation policies. Given the growth that has been achieved, I envision that each NIH research institute will continue to strengthen itself and each other to raise NIH as a research powerhouse in Malaysia.

This book documents the evolution of what now stands as ICR and its commendable achievements over the past two decades. I earnestly congratulate ICR supported by the Network of Clinical Research Centres for nurturing the nation's clinical research ecosystem to its current flourishing state. I hope this book inspires existing and aspiring researchers in developing themselves and their skills in research.

Dr. S. Asmaliza Binti Ismail

Message

Director Institute for Clinical Research (ICR)

It gives me great pleasure to introduce Years of Evolution: from National Clinical Research Centre (NCRC) to Institute for Clinical Research (ICR) in conjunction with the 22nd anniversary of the Institute's establishment. The leadership, contribution, and dedication of ICR's leaders, clinicians, researchers, and staff are recognised and commemorated within these pages. By applying attentive leadership strategies, formulating essential and effective quality standards, creating strong human research capacity, as well as setting up accredited research infrastructure, ICR is continually spearheading excellence in the Ministry of Health (MOH) Malaysia's research ecosystem.

In the early years, ICR initiated several national clinical registries, pioneered the establishment of the National Medical Research Register (NMRR), and created a historic underpinning of research that led to access to affordable trial medication for hepatitis C patients. Since its start two decades ago, ICR has achieved remarkable progress. There are now 37 Clinical Research Centres in MOH hospitals involved in clinical research for the development of new treatments and medications for diseases and conditions. The COVID-19 pandemic also witnessed key research recognition for ICR's involvement in WHO Solidarity Trial, I-TECH Study (Ivermectin), Vaccine Trials (IMBCAMS, Sinovac Biotech, Livzon, Cansino Bio), the utilization of digital health technologies such as CODIQ-My and Cofe App, as well as nationwide policy-driven vaccination research including RECoVam, VIGILANCE, and SafeCoVAC.

The future remains bright as we look forward to the implementation of Precision Medicine and Digital Health Innovative solutions, as well as becoming a regional hub for First-in-Human clinical trials. As part of the global ecosystem, ICR will strive continuously to be at the forefront of clinical research in providing knowledge to improve care for patients and deliver better healthcare for the population.



Datuk Dr. Kalaiarasu M. Peariasamy

A conceptual image featuring a city skyline at dusk in the background. In the foreground, several large, light-colored puzzle pieces are scattered on a flat surface. Several people are interacting with these pieces: one person is on a ladder placing a piece on a tall stack, another is standing on a stack, and others are moving pieces around. The scene is dimly lit, with the city lights providing a soft glow.

INTRODUCING ICR

*“If I have seen further than others, it is by
standing upon the shoulders of giants.”*

—Sir Isaac Newton



ICR

MINISTRY OF HEALTH MALAYSIA

Research that matters to patients

**ICR IS ONE OF SIX
RESEARCH INSTITUTES
UNDER NIH—THE RESEARCH ARM OF
MINISTRY OF HEALTH MALAYSIA**

THE ICR EVOLUTION

1997

Clinical Research Centre (CRC) founded by Tan Sri Dato' Seri Dr. Ismail Merican to ensure quality and ethical conduct of clinical research in Ministry of Health (MOH) Malaysia.

2000

The first fully operational CRC formally established at Hospital Kuala Lumpur.

2001-2002

Three original units initiated under CRC:

- Clinical Epidemiology Unit
- Evidence-Based Medicine Unit
- Clinical Trial Unit

2003-2009

- Formation of 14 CRCs (Network of CRCs) under CRC headquarters (National CRC, NCRC).
- NCRC + The Network of CRCs incorporated as a research institute under the National Institutes of Health (NIH) MOH Malaysia.
- NCRC established Healthcare Statistics Unit in 2009.

2010

- CRC recognised under the Healthcare National Key Economic Area in creating a supportive ecosystem to grow clinical research alongside Clinical Research Malaysia (CRM).
- The Clinical Trial Ward under the Clinical Trial Unit was established at Hospital Ampang.
- CRC established early phase and bioavailability/bioequivalence clinical studies within MOH facilities.

2011-2018

Continued growth of The Network of CRCs nationwide.

2019

- NCRC rebranded as Institute for Clinical Research (ICR) under NIH, Setia Alam.
- Four centres established under ICR (rebranding of three units and creation of a new centre): CCE, CCORe, CCT, CCRN
- The Network of CRCs continued to be within the purview of ICR.

2020-2022

- ICR established Digital Health Research and Innovation Unit (DHRI) in 2020.
- Continued growth of The Network of CRCs nationwide totaling 37 CRCs in 2022.

Way Forward

Future research focus:

- Precision medicine
- Digital health
- Clinical trial hub



Vision



To Become a Leading Clinical Research
Institution in Asia

Mission

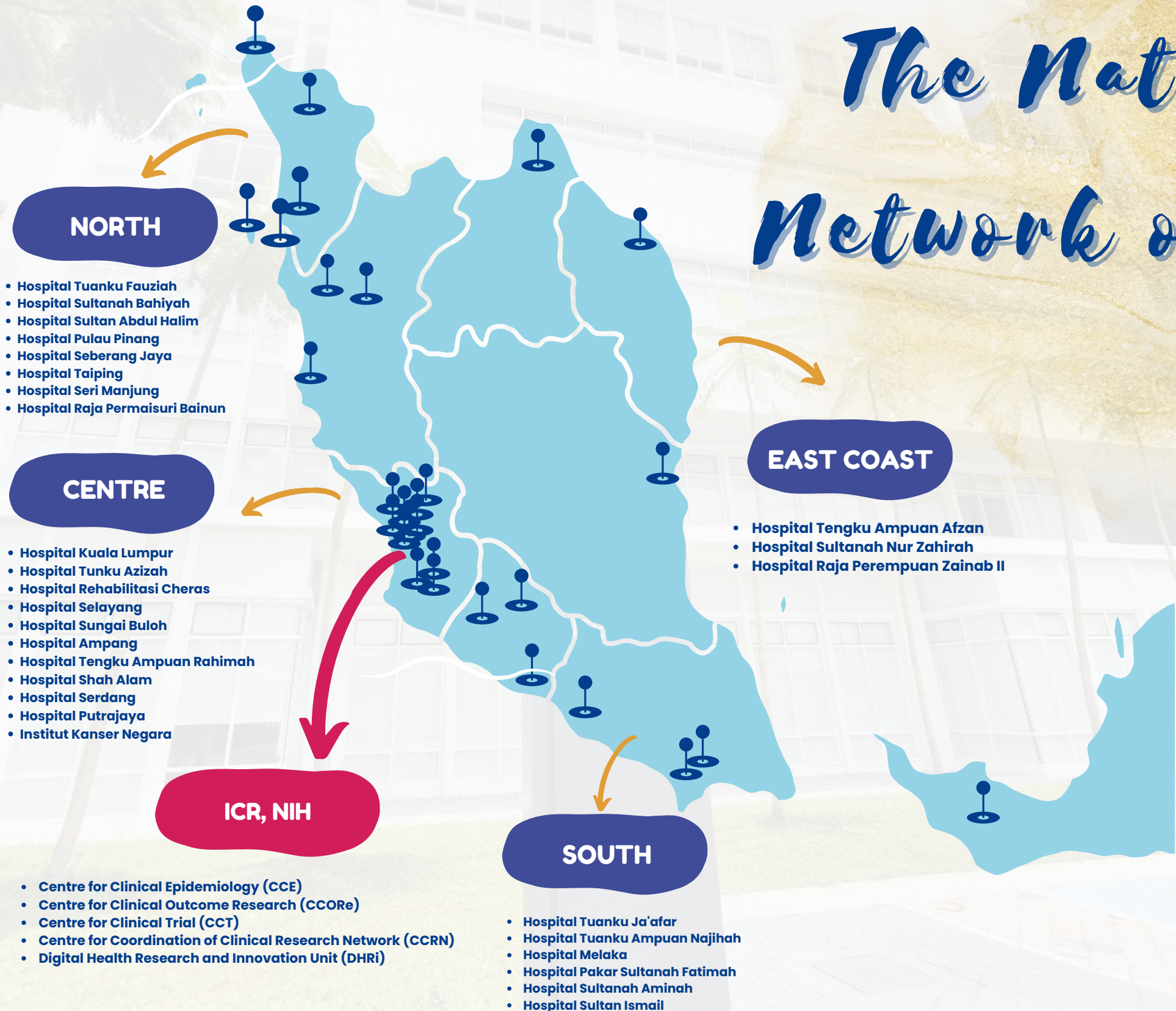


To Improve Patients' Health Outcomes
Through Ethical and Quality Clinical Research



ICR COMPRISES FOUR CENTRES, ONE UNIT, AND THE NETWORK OF CRCS

The National Network of



ionwide
f 37 CRCs



B4

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Penyelidik
Klinikal
(ICR)

SABAH

- Hospital Queen Elizabeth
- Hospital Queen Elizabeth II
- Hospital Duchess of Kent
- Hospital Wanita dan Kanak-Kanak Sabah
- Hospital Tawau

SARAWAK

- Hospital Umum Sarawak
- Hospital Miri
- Hospital Sibu
- Hospital Bintulu

Functions of ICR

Provide leadership in the development and strengthening of clinical research capacity in the Ministry of Health (MOH).

Facilitate the establishment of CRCs and provide technical support to The Network of CRCs.

Promote and support the conduct of Investigator-Initiated Research within MOH.

Coordinate the conduct of Industry-Sponsored Research at MOH facilities.

Establish and maintain clinical database for MOH.

Establish collaboration with local, regional, and international research organisations in the pursuit of excellence in clinical research.

B4

Institut
Penyelidikan
Klinikal
(ICR)

Functions of The Network of CRCs

Support and facilitate clinical research activities by identifying a pool of researchers and providing facility as well as administrative and technical support.

Assist in the registration of research protocols to the National Medical Research Register (NMRR) and application of research grants.

Participate in clinical trials and other research initiated or coordinated by ICR.

Promote research through capacity building in the following ways:

- Good Clinical Practice (GCP)
- Good Research Practice (GRP)
- Continuous Professional Development (CPD) activities
- Research clinics
- Mentoring programme

ICR STRATEGIC PLAN (2020-2025)

STRATEGIC OBJECTIVES

To be the preferred clinical research hub

To establish a conducive digital research ecosystem

To be recognised as an institute that generates renowned clinical research leaders

To be recognised as a trusted evidence-based medical information source for all



STRATEGIC PILLARS

Clinical Research Excellence

Technology in Clinical Research

Sustainable Human Capacity Building

Visibility

The background of the slide is a faded, grayscale image of a modern, multi-story building with a grid of windows. Several tall palm trees are in the foreground, partially obscuring the building. In the center of the building, the letters "ICR" are visible in a large, bold font.

ICR VISIONARIES

"Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has."

—Margaret Mead



YBhg. Dato' Dr. Zaki Morad Bin Mohamed Zaher

DIRECTOR, NCRC (2000-2006)

"The establishment of NCRC came at an opportune time. Many clinicians were keen to do clinical research but lacked the necessary support required to do so. Many have difficulty drawing up proper research proposals. There were no dedicated staff to help them and most who embarked on clinical research relied on untrained ward/clinic nurses to collect data.

The priority of NCRC then was to set up basic infrastructure, selection and training of dedicated staff, and developing guidelines and SOPs. With the help of a number of dedicated individuals, we managed to do so in a relatively short time. We assisted doctors to participate in industry-sponsored trials that exposed them to the rigours and discipline of conducting clinical trials.

It is gratifying to see the early NCRC which was housed in an office space in Hospital Kuala Lumpur developed into a large well-equipped and well-staffed facility that has taken us into the competitive world of clinical research."



Dr. Lim Teck Onn

DIRECTOR, NCRC (2007-2010)

"The launch of The Network of Clinical Research Centres to coordinate clinical research within the Ministry of Health facilities via a single point of contact was an exciting time.

The way forward is to look towards growing Malaysia's own expertise in all clinical research-related fields. Human capacity development remains at the root of success. Opportunities abound for clinical research expertise in data management, statistical analysis, logistics, IT applications, systems security, sample handling, and other aspects along the clinical trial process.

In clinical research, the entire world stands to benefit. Congratulations, ICR! The future is waiting."



YBhg. Dato' Dr. Goh Pik Pin

DIRECTOR, NCRC/ICR (2010-2020)

“Coming after the two giant clinician researchers, i.e. Dato' Dr. Zaki Morad and Dr. Lim Teck Onn, the first and second director of NCRC, who paved a solid foundation, my task to expand The Network of CRCs at various MOH hospitals became easier.

The high-quality clinical research conducted by MOH staff has provided sound evidence that helps improve healthcare programme and policy for the betterment of our community. This is clearly shown from the clinical research done during the COVID-19 pandemic under the leadership of the current director, Datuk Dr. Kalaiarasu M. Peariasamy.

My aspiration is to see ICR be empowered to provide necessary scientific exposure and support to MOH medical professionals who want to excel in both clinical work and research, especially now that ICR is housed in the well-resourced National Institutes of Health.”



YBhg. Datuk Dr. Kalaiarasu M. Peariasamy

DIRECTOR, ICR (2020-PRESENT)

“ICR possesses the heart of a powerful research tool by combining strong human research capacity, patient centricity, innovative intuitions, and digitally-enabled solutions thereby continuing to lead and support higher enrolment, wider engagement, and high-quality healthcare. These will remain essential in realising our ambitions to make ICR a regional hub for clinical research—improving patient health outcomes and making a tangible difference to patients’ lives.”

THE GROWTH OF THE

**YBhg. Dato' Dr.
Zaki Morad Bin
Mohamed Zaher**

(2000-2006)

2003

- Hospital Pulau Pinang
- Hospital Umum Sarawak
- Hospital Tengku Ampuan Afzan

2006

- Hospital Sultanah Bahiyah
- Hospital Selayang
- Hospital Tuanku Ja'afar

2011

- Hospital Queen Elizabeth II
- Hospital Wanita dan Kanak-Kanak Sabah
- Hospital Seri Manjung
- Hospital Seberang Jaya
- Hospital Taiping
- Hospital Sibul

**YBhg. Dato' Dr.
Goh Pik Pin**

(2010-2020)

2012

- Hospital Kuala Lumpur
- Hospital Miri
- Hospital Sultan Ismail

2014

- Hospital Duchess of Kent
- Institut Kanser Negara

2015

- Hospital Sultan Abdul Halim
- Hospital Rehabilitasi Cheras
- Hospital Pakar Sultanah Fatimah

E NETWORK OF CRC

2007

- Hospital Tuanku Fauziah
- Hospital Raja Permaisuri Bainun
- Hospital Ampang
- Hospital Sultanah Nur Zahirah
- Hospital Raja Perempuan Zainab II
- Hospital Sultanah Aminah

Dr. Lim Teck Onn

(2007-2010)

2010

- Hospital Serdang
- Hospital Putrajaya
- Hospital Sungai Buloh

2008

- Hospital Melaka
- Hospital Queen Elizabeth

YBhg. Datuk Dr. Kalaiarasu M. Peariasamy

(2020-Present)

2016

- Hospital Tengku Ampuan Rahimah
- Hospital Shah Alam

2019

- Hospital Tunku Azizah
- Hospital Tawau

2020

- Hospital Bintulu

2022

- Hospital Tuanku Ampuan Najihah



ICR MACHINERY

*"Individually, we are one drop.
Together, we are an ocean."*

—Ryunosuke Satoro



Centre for Clinical Epidemiology (CCE)

The mission of CCE is to contribute evidence through epidemiological research to bridge the gaps between clinical practice and health policy in the best interest of patient care.

As one of the main arms of the Institute for Clinical Research, we undertake multidisciplinary scientific research on disease prevention, occurrence, treatment, and prognosis.



**Humoral Immunity Response of BNT162b2 mRNA Vaccination Among Healthcare Workers in Malaysia (VIGILANCE) Study:
Data collection, August 2021**



**Detection, Diagnosis, and Cancer Treatment Timeline in Malaysia (DEDICATE) Study:
Presentation to stakeholders, November 2019**



CCE team

Centre for Clinical Outcome Research (CCORe)

Formerly known as Healthcare Statistics Unit (HSU).

Aim: to become a leading centre in evaluating and improving clinical and health outcomes through impactful research.

Research focus areas: **PRIMARY CARE and CARDIOVASCULAR RESEARCH**

CCORe members are formally trained in public health, data analytics, pharmacoepidemiology, implementation research, and systematic review.

**2009–
2014**

NHSI

National Healthcare Establishment & Workforce Survey

National Medical Device Survey

National Medicine Utilisation Survey

National Medical Care Survey

**2015–
2016**

MHSR

Quality and Outcome Framework (QOF)

Cost Function and Efficiency

Quality and Costs of Primary Care (QUALICO-PC)

Amenable Mortality

**2017–
2018**

MHSR: Enhanced Primary Health Care (EnPHC)

Stroke Metrics & Treatment

Heart Failure Metrics

Zika Case Series

Dengue HLH

**2020–
2022**

Barriers to Hyperacute Stroke

Teleconsultation in Primary Care

RCTs: Tocilizumab, Favipiravir/Ivermectin

COVID-19 Vaccine Surveillance:

RECoVaM, VIGILANCE, and SafeCoVAC.

Long COVID cohort (LOCOVIM)



Centre for Clinical Trial (CCT)

Established in 2010.

Conduct and support all phases of clinical research, bioavailability, and bioequivalence studies in accordance with local and international standards.

Bridge the gap from bench to bedside by conducting Phase 1 Clinical Trial.

Support the local generic pharmaceutical industry by conducting bioequivalence studies to allow the availability of more cost-effective medication.

DNDi-SOF/RDV-01-HCV Study (hepatitis C study):
Improve drug affordability and accessibility from
USD\$100,000.00 to USD\$300.00



**CanSino Vaccine Clinical Trial :
The World's First Inhaled Vaccine Trial**

**NPRA Phase 1 inspection visit 2022:
CCT Ampang was accredited as a Phase 1 site
on 11th January 2022**



Centre for Coordination of Clinical Research Network (CCRN)

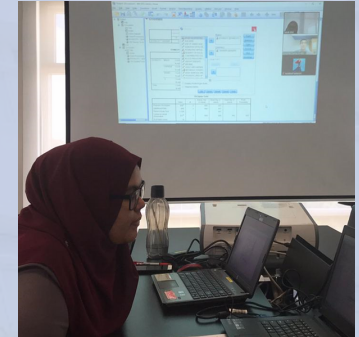
TRAINING



- Good Clinical Practice Secretariat for MOH
- Conduct Research Training



CONSULTATION



Research Consultation Clinic

GOVERNANCE

Coordinate Research Management
for The Network of 37 CRCs



Mock Survey
MSQH Standard 26: CRC

Joint CRC Asset Audit
by ICR and NIH



RESEARCH



Strengthening Mental Health and Psychosocial Support
(MHPSS) Systems and Services for Children and Adolescents in
East Asia and Pacific Region 2022



Digital Health Research and Innovation Unit (DHRI)

Established in 2020.

Dedicated to drive research and innovation in digital health.



FUNCTION

1

Drive digital health research and transformation in the healthcare sector.

2

Boost the competitiveness of ICR through collaborative digital health research.

3

Build and enable digital health infrastructure.

4

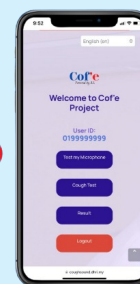
Nurture agile and competent digital health talents.

5

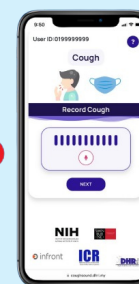
Create an inclusive, secure, and ethical digital health research ecosystem.



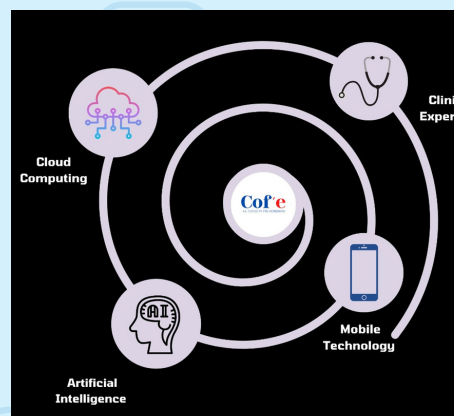
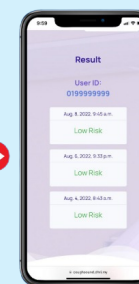
>80% Accuracy



Log In Page



Recording



Cof'e is the latest COVID-19 pre-screening digital solution developed by DHRI. The solution incorporates mobile technology, cloud technology, clinical expertise, and A.I. to help the public to detect COVID-19 infections anytime and anywhere with no additional cost.



CRC

HOSPITAL TUANKU FAUZIAH



Established in May 2007

GOOD COLLABORATION with local universities:

- i. Universiti Malaysia Perlis (UniMAP)
- ii. Universiti Teknologi MARA (UiTM)
- iii. Universiti Utara Malaysia (UUM)



Protocol Development Workshop 2022

CRC

HOSPITAL SULTANAH BAHIAH

Established in 2006

Centre of Excellence for GASTROENTEROLOGY and HEPATOLOGY research, focusing on hepatitis C, NAFLD, and colorectal cancer



“ We are so happy for the patients. They have been waiting for a treatment for so long. Now, we can tell them: I have the treatment for you right now. ”

First Hepatitis C treatment developed through South-South cooperation registered in Malaysia

DNDi
Drugs for Neglected Diseases Institute

#hepatitisC



World Hepatitis Day 2022 Screening Activity



CRC

HOSPITAL SULTAN ABDUL HALIM

Established in 2015



TOP RECRUITER award
Dr. Vijaya Kumar
COVID-19 vaccine study
(enrolled 1500+ subjects)



Kedah Research Summit 2019

CRC

HOSPITAL PULAU PINANG



Top MOH Clinical Trial Site Award



CRC Penang booth during NCCR 2015



Good Clinical Practice 2022

22 YEARS OF ICR EVOLUTION

29

CRC HOSPITAL SEBERANG JAYA

Established
in 2011



Centre of Excellence
for **STROKE** and
DEMENTIA research



Accredited BABE centre by the National
Pharmaceutical Regulatory Agency

Equipped with a 24-bedded
Clinical Trial Unit (CTU) ward

CRC HOSPITAL TAIPING

Established in 2011



Research focus areas:
**GERIATRIC, PUBLIC HEALTH,
PHARMACOEPIDEMIOLOGY, and PHARMACY**

2015: CRC with the highest number of
publications

PLEDGE study: enrolled the first patient
in Malaysia

LIVZON-V01 study: First site in Malaysia
to reach recruitment target



Taiping
Research Day 2020

CRC HOSPITAL SERI MANJUNG



Established in
September 2011

TOP RECRUITER Site in 2015

CRM-Featured Site in 2021



Dr. Lee Li Yuan

- TOP RECRUITER for 7 studies (2013–2021)
- 6th GLOBAL HIGHEST RECRUITER in 2017

CRC HOSPITAL RAJA PERMAISURI BAINUN

Established in 2007



Well-balanced multidisciplinary research team

Perak Medical Journal

- Collaboration with the Postgraduate Medical Education Society Hospital Raja Permaisuri Bainun
- Digital journal publishing research articles by researchers in Perak

Impactful Research:

Improving Management of Prolonged Neonatal Jaundice (NNJ) in a Regional Setting: an Interventional Quasi-Experimental Study. Adapted into MOH Integrated Plan for NNJ Detection and Management

National Childhood Drowning Registry

Escalator Safety Among Children

Impact of Electronic Screens on Speech Development of Children

Is Ipoh an Age-Friendly City? A Mixed-Method Study Exploring the View of the Elderly and Their Caregivers

CRC HOSPITAL KUALA LUMPUR



Established in November 2012

'PRIME SITE' for Industry-Sponsored Research (ISR) by IQVIA since 2014

SITE ALLIANCE MEMBER under the collaborative work with PARAXEL since November 2016

Clinical Trial Unit functioning since 2019

Annual HKL Research Day



CRC HOSPITAL TUNKU AZIZAH

Established in
2019



Clinical research
hub for
**PAEDIATRICS and
OBSTETRICS &
GYNAECOLOGY**

Coordinates inter-agency
collaborations in clinical
research and innovation
projects

CRC

HOSPITAL REHABILITASI CHERAS



Established in 2015

Focusing on REHABILITATION MEDICINE

Collaborations:

- Universiti Teknologi Malaysia (UTM) for 3D printing
- SIRIM Berhad to produce 3D-printed prostheses sockets for rehab patients



CRC

HOSPITAL SELAYANG



First CRC in Selangor

Established in 2006

Trial hub for NEPHROLOGY, HEPATOLOGY, RHEUMATOLOGY, DERMATOLOGY, OPHTHALMOLOGY, and UROLOGY

One of the earliest CRCs equipped with calibrated clinical trial equipments

Top hospital for high cumulative ISI Impact Factor per researcher



CRC HOSPITAL SUNGAI BULOH



Established in 2010



Centre of Excellence for
INFECTIOUS DISEASE research

Numerous COVID-19 research and publications
2020–2022



CRC HOSPITAL AMPANG



Established in 2007



Centre of Excellence for
HAEMATOLOGY research

Top recruiter of Phase 1
Cyto-MSD trial

CRC

HOSPITAL TENGKU AMPUAN RAHIMAH



Established in 2006

**2016: CRC with the highest
number of publications**

Research focus areas:
ANAESTHESIA and PAIN MANAGEMENT



CRC

HOSPITAL SHAH ALAM



Established in 2016

**Centre of Excellence for
OPHTHALMOLOGY research**

Advanced medical technology equipment in
the Ophthalmology department



CRC HOSPITAL SERDANG

Established in 2010

Centre of Excellence for
CARDIOLOGY and
NEPHROLOGY research



CRC HOSPITAL PUTRAJAYA

Established in 2010

Centre of Excellence for
ENDOCRINOLOGY research



CRC HOSPITAL WANITA DAN KANAK-KANAK SABAH



**Established in
February 2011**



Research focus areas:

- **Obstetrics**
- **Gynaecology**
- **Paediatrics**



Dr. Flora Chong Li Tze

**First recruitment in
Malaysia for multiple
studies:**

- **GATSBY Study**
- **Everexes Study**
- **Jacob Study**
- **METGASTRIC Study**

CRC INSTITUT KANSER NEGARA



Established in 2014



Centre of Excellence
for ONCOLOGY research



2018:
Clinical Trial site of the year



Collaboration with
pharmaceutical agencies e.g.
Astra Zeneca:

- DESTINY trial on lung cancer
- SERENA-4 trial on breast cancer



CRC HOSPITAL TUANKU JA'AFAR



- 01 Established in September 2006
- 02 CRM-featured site 2022
- 03 Research focus areas:
 - Rheumatology
 - Nephrology
 - Paediatrics
 - Endocrinology
 - Psychiatry
 - Gastroenterology
- 04 Annual Seremban Research Day

TOP RECRUITER
site in 2016 & 2017

CRC HOSPITAL SULTAN ISMAIL



Established in 2012



Support and facilitate research activities in the hospital:

- Provide databases
- Track ISR and IIR for publications
- Offer research management and technical support

CRC HOSPITAL TENGKU AMPUAN AFZAN

- 01 Established in 2003
- 02 TOP RECRUITER in Malaysia and Asia Pacific region
- 03 DNDi Hep C project 2018 leadership award
- 04 CANOPY-1 study

Centre of Excellence for
GASTROENTEROLOGY,
NEPHROLOGY, and
ONCOLOGY research



CRC HOSPITAL TUANKU AMPUAN NAJIHAH



Established in
January 2022

CRC HOSPITAL MELAKA



CRC HOSPITAL PAKAR SULTANAH FATIMAH

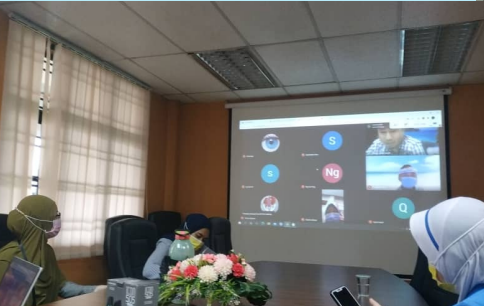


Established in
2014

Good Clinical
Practice (GCP)



Statistics
Workshop



Established in 2007

Active in Investigator-
Initiated Research

Renowned Research:
MAVERIK, WHO SOLIDARITY,
I-TECH, TECOS, CLARIFY



CRC HOSPITAL SULTANAH AMINAH

**Established
in 2007**



**Johor
Research
Day 2018**



Training:

- Good Clinical Practice (GCP)
- Introduction to Clinical Research (ICR)
- Research methodology
- Critical appraisal and evidence-based medicine
- Biostatistics

CRC HOSPITAL UMUM SARAWAK

**Established
in 2003**



**One stop
three-floored
clinical trial
facility**



**Dedicated
Phase 1 Unit**

**Accredited Clinical
Research Laboratory:**

- MS ISO/IEC 17025: 2017 (chemical testing)
- MS ISO 15189: 2014 (medical testing)



**Numerous
First-Patient
Awards Locally
and Globally**



CRC HOSPITAL SULTANAH NUR ZAHIRAH

Established in
2007

National Neurology
Registry (NNeuR)



Centre of Excellence for
NEUROLOGY research

Collaborators :

i. Universiti Sains Malaysia's
School of Medical Sciences

ii. London School of Hygiene
and Tropical Medicine



CRC HOSPITAL RAJA PEREMPUAN ZAINAB II

Research focus areas:

- Cardiology/Vascular Diseases
- Endocrinology
- Gastroenterology
- Nephrology



Established in
2007

Paraxel Site
Alliance

CRC HOSPITAL BINTULU



**Established in
2020**



**Enhance research
activity among the
hospital staff and
provide support to
the researchers**

CRC HOSPITAL QUEEN ELIZABETH



Research focus areas:

- **Haematology**
- **Dermatology**
- **Gastroenterology**
- **Infectious Disease**
- **Nephrology**



Established in 2008



MERDEKA AWARD 2017
for extensive
contribution in
MALARIA research



Potential clinical trial
hub for **Traditional and
Complementary
Medicine**

CRC HOSPITAL MIRI

Established in 2012



1. Significant Advancement Award for Site
2. Significant Investigator Award

Clinical Trials Day and
Sponsored Research
Award Presentation
2022

Northern Zone
Sarawak Research
Day



CRC HOSPITAL SIBU



Established in
January 2011



Molecular test facilities
established in partnership
with SEGi University and
Duke University in June 2017

Dr. Toh Teck Hock (Head of CRC)

1. RESPIRE study
 - GLOBAL TOP 5th recruiter
 - TOP RECRUITER outside Europe
2. PRO-nCOV-3002 study
 - TOP ENROLLER in Malaysia
 - TOP 5th ENROLLER globally
3. CYD67 study
 - TOP ENROLLER MOH sites in Malaysia
- Special Education Network in Asia (SENIA) Advocacy Award



CRC HOSPITAL QUEEN ELIZABETH II

Established in
December 2011



Research focus areas:

**HEART FAILURE, CHRONIC
RHEUMATIC HEART
DISEASE, and MEDICAL
DEVICES**

Certificate of
Excellence 2017
(**TOP 10** CRC
Hospital for ISI
Journal Impact
Factor)

Certificate of
Achievement 2018:
IQVIA preferred
site

**Heart Failure
(MyHF) Registry**

CRC HOSPITAL DUCHESS OF KENT



Established in 2014



CRC HOSPITAL TAWAU

Established in
November 2019



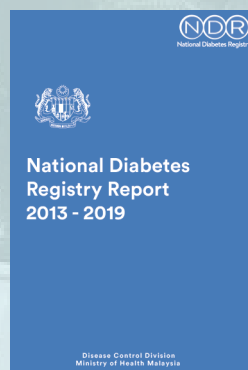
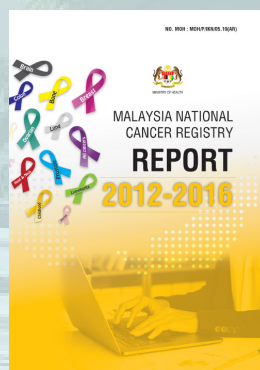
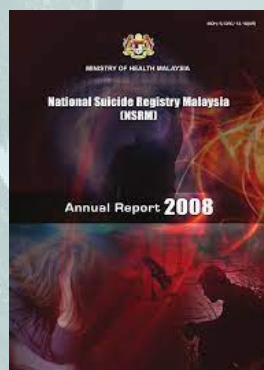


ICR ILLUMINATING PROGRESS

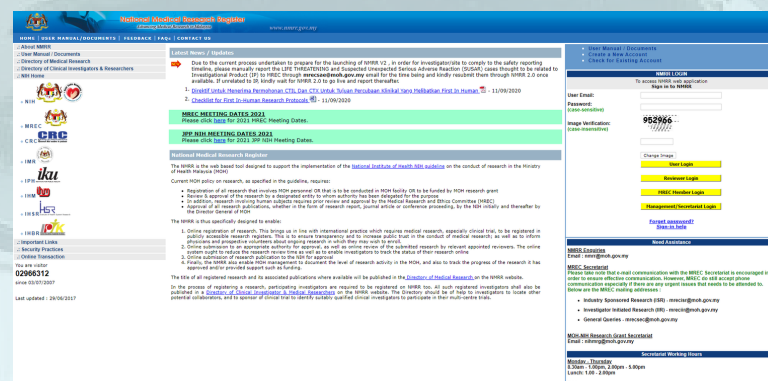
"To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science."

—Albert Einstein

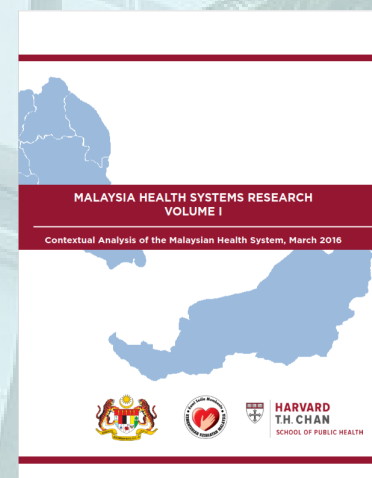
Help to establish and/or support 35 disease registries (since 2000)



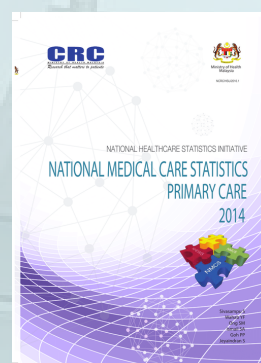
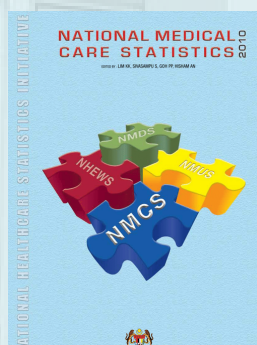
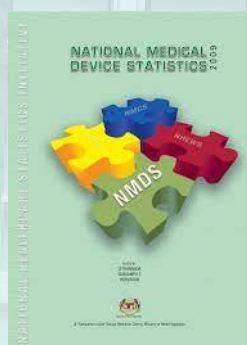
Pioneered the development of the National Medical Research Register (NMRR), with its nationwide roll-out in 2007



Contributed to the Malaysia Health Systems Research (MHSR) 2015-2016



Established the National Healthcare Statistics Initiative (2005-2013)



- Quality and Outcomes Framework (QOF)
- Cost Function and Efficiency
- Quality and Cost of Primary Care (QUALICOPC)
- Amenable Mortality
- Enhanced Primary Health Care (EnPHC)

ASEAN Costs in Oncology (ACTION) Study, 2012–2014

- Assess the economic impact of cancer.
- 8 low- and middle-income countries in Southeast Asia.
- 9,513 newly diagnosed cancer patients.
- Research findings utilised in government initiatives: PeKa B40 and MySalam.

The ACTION Study Group *BMC Medicine* (2015) 13:190
DOI 10.1186/s12916-015-0433-1



Medicine for Global Health

RESEARCH ARTICLE

Open Access



Catastrophic health expenditure and 12-month mortality associated with cancer in Southeast Asia: results from a longitudinal study in eight countries

The ACTION Study Group

Abstract

Background: One of the biggest obstacles to developing policies in cancer care in Southeast Asia is lack of reliable data on disease burden and economic consequences. In 2012, we instigated a study of new cancer patients in the Association of Southeast Asian Nations (ASEAN) region – the ASEAN Costs in Oncology (ACTION) study – to assess the economic impact of cancer.

Methods: The ACTION study is a prospective longitudinal study of 9,513 consecutively recruited adult patients with an initial diagnosis of cancer. Twelve months after diagnosis, we recorded death and household financial catastrophe (out-of-pocket medical costs exceeding 30 % of annual household income). We assessed the effect on these two outcomes of a range of socio-demographic, clinical, and economic predictors using a multinomial regression model.

Results: The mean age of participants was 52 years; 64 % were women. A year after diagnosis, 29 % had died, 48 % experienced financial catastrophe, and just 23 % were alive with no financial catastrophe. The risk of dying from cancer and facing catastrophic payments was associated with clinical variables, such as a more advanced disease stage at diagnosis, and socioeconomic status pre-diagnosis. Participants in the low income category within each country had significantly higher odds of financial catastrophe (odds ratio, 5.86; 95 % confidence interval, 4.76–7.23) and death (5.52; 4.34–7.02) than participants with high income. Those without insurance were also more likely to experience financial catastrophe (1.27; 1.05–1.52) and die (1.51; 1.21–1.88) than participants with insurance.

Conclusions: A cancer diagnosis in Southeast Asia is potentially disastrous, with over 75 % of patients experiencing death or financial catastrophe within one year. This study adds compelling evidence to the argument for policies that improve access to care and provide adequate financial protection from the costs of illness.

Background

The Association of Southeast Asian Nations (ASEAN) region consists of ten countries – Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam – and is home to over half a billion people. The burden of cancer is increasing in the ASEAN region, due to population ageing and growth and the adoption of cancer-associated lifestyle behaviours [1]. In 2012, there were estimated to be over

750,000 new cases of cancer, and incidence is expected to rise to 1.3 million per year by 2030 [2]. Survival rates for most cancers are poor and quality of life is greatly impaired [2–4]. In addition to this significant disease burden, cancer can have a profound economic effect on individuals and their households, especially among the poor and under-insured [5].

Most studies examining the economic burden of cancer have, however, been conducted in high-income settings. Little is known about its economic impact in low- and middle-income settings, where the financial implication of a cancer diagnosis may not be equitable because out-of-pocket (OOP) payments are the principal means of

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European Journal of Cancer 74 (2017) 36–37



Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.ejancer.com



Original Research

Policy and priorities for national cancer control planning in low- and middle-income countries: Lessons from the Association of Southeast Asian Nations (ASEAN) Costs in Oncology prospective cohort study



The ACTION Study Group¹, Nirmala Bhoo-Pathy^{a,b,*}, Cheng-Har Yip^c,
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Received 2 September 2016; received in revised form 27 November 2016; accepted 8 December 2016
Available online 6 February 2017

KEYWORDS

Cancer;
Low- and middle-income countries;
Financial catastrophe;
Economic hardship;
Poverty

Abstract **Background:** Evidence to guide policymakers in developing affordable and equitable cancer control plans are scarce in low- and middle-income countries (LMIC).

Methods: The 2012–2014 ASEAN Costs in Oncology Study prospectively followed-up 9513 newly diagnosed cancer patients from eight LMIC in Southeast Asia for 12 months. Overall and country-specific incidence of financial catastrophe (out-of-pocket health costs \geq 30% of annual household income), economic hardship (inability to make necessary household payments), poverty (living below national poverty line), and all-cause mortality were determined. Stepwise multinomial regression was used to estimate the extent to which health insurance, cancer stage and treatment explained these outcomes.

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






















STORM-C-1 Study (Ravidasvir Trial), 2016–2021

- Collaboration with Drugs for Neglected Diseases initiative (DNDi) and Doctors Without Border (MSF).
- Assess the efficacy and safety of affordable direct-acting antivirals for hepatitis C virus (HCV) infection.
- A national plan to cure chronic HCV infection patients.
- **Malaysia: the first in the world to approve Ravida (affordable HCV medicine).**

THE LANCET
Gastroenterology & Hepatology

ARTICLES | VOLUME 6, ISSUE 6, P448-458, JUNE 01, 2021

Efficacy and safety of ravidasvir plus sofosbuvir in patients with chronic hepatitis C infection without cirrhosis or with compensated cirrhosis (STORM-C-1): interim analysis of a two-stage, open-label, multicentre, single arm, phase 2/3 trial

MD Isabelle Andrieux-Meyer         MRCP Soek-Siam Tan         MD Sombat Thanprasertsuk        

PhD Nicolas Salvadori • BSc Caroline Menétreay • BSc François Simon • PhD Tim R Cressley •
MMed Hajjah Rosaida Hj Mohd Said • MD Muhammad Radzi Abu Hassan • MMed Haniza Omar • MRCP Hoi-Poh Tee •
PhD Wah Kheong Chan • MRCP Suresh Kumar • MD Satawat Thongsawat • MD Kanawee Thetket •
MD Anchalee Awhingsanon • MD Suparat Khemmark • MSc Sabine Yerly • PharmD Nicole Ngo-Giang-Huong •
SRN Sasikala Silva • DPhil Alistair Swanson • DA Vishal Goyal • MD Francois Bompard • MD Bernard Pécoul •
MBBCh Shahnaz Murad • Show less • Show footnotes

Open Access • Published: April 15, 2021 • DOI: [https://doi.org/10.1016/S2468-1253\(21\)00031-5](https://doi.org/10.1016/S2468-1253(21)00031-5)



From the Desk of the Director-General of Health Malaysia

A NATION WORKING TOGETHER FOR BETTER HEALTH

PRESS

Kenyataan Akhbar KPK 4 Jun 2021 – Kelulusan Pendaftaran Secara Bersyarat Ravidasvir 200mg Tablet Bagi Rawatan Hepatitis C

BY DG OF HEALTH ON JUNE 4, 2021

Kementerian Kesihatan Malaysia (KKM) ingin memaklumkan bahawa Pihak Berkuasa Kawalan Dadah (PBKD) Malaysia telah meluluskan pendaftaran bersyarat produk Ravidasvir 200mg (Ravidasvir Hydrochloride 200mg) dalam mesyuarat kali ke-358 pada 4 Jun 2021. Malaysia merupakan **negara pertama di dunia** yang meluluskan penggunaan produk Ravidasvir, yang digunakan secara kombinasi dengan ubat lain untuk merawat jangkitan virus hepatitis C kronik (HCV) dalam kalangan orang dewasa. Produk ini dikilangkan oleh Doppel Pharmaceutics S.R.L. Itali yang mana Pharmangiage Manufacturing Berhad adalah pemegang pendaftaran produk tersebut di Malaysia.

Jangkitan HCV merupakan isu kesihatan awam di negara ini dan Malaysia komited untuk menghapuskan HCV menjelang tahun 2030. Walau bagaimanapun, kos pengesanan dan rawatan menggunakan ubat Direct Acting Antivirals (DAA) pada masa ini memerlukan kos yang tinggi. Oleh itu, terdapat keperluan untuk mencari penyelesaian alternatif dalam mendapatkan rawatan yang berkesan dengan kos yang lebih berpatutan. Pelan Strategik Nasional bagi Hepatitis B dan C 2019–2023 telah disongkan oleh KKM untuk merangka hala tuju yang jelas dan memastikan matlamat menghapuskan hepatitis B dan C dapat dicapai.

KKM bekerjasama dengan Drugs for Neglected Diseases initiative (DNDi) untuk memulakan inisiatif kolaborasi pada tahun 2016 bagi mengurangkan halangan daripada segi akses dan kemampuan untuk pesakit HCV mendapatkan rawatan di Malaysia. Hasil utama kerjasama ini adalah melalui pelaksanaan Kajian Klinikal HCV DNDi atau kajian STORM-C-1 yang dijalankan di enam (6) fasiliti di Malaysia dan empat (4) fasiliti di Thailand. Dapatan daripada kajian STORM-C-1 ini telah digunakan sebagai data utama bagi permohonan pendaftaran produk tersebut dan ianya juga telah diterbitkan di jurnal 'The Lancet Gastroenterology & Hepatology' pada 15 April 2021.

Sebagai makluman, kelulusan pendaftaran bersyarat produk Ravidasvir ini memerlukan pemegang pendaftaran produk untuk mengemukakan data tambahan dan terkini produk tersebut dari semasa ke semasa, untuk memastikan keberkesanan dan keselamatannya diperbaharui dan perbandingan manfaat-risiko bagi produk ini sentiasa positif.

TAN SRI DATO' SRI DR. NOOR HISHAM ABDULLAH

KETUA PENGARAH KESIHATAN MALAYSIA



Efficacy and safety of ravidasvir plus sofosbuvir in patients with chronic hepatitis C infection without cirrhosis or with compensated cirrhosis (STORM-C-1): interim analysis of a two-stage, open-label, multicentre, single arm, phase 2/3 trial



Isabelle Andrieux-Meyer         Soek-Siam Tan         MD Sombat Thanprasertsuk        

Least Squares Regression
2021, 6, 448–458
Published Online
April 15, 2021
[https://doi.org/10.1016/S2468-1253\(21\)00031-5](https://doi.org/10.1016/S2468-1253(21)00031-5)

This online publication has been corrected. The corrected version first appeared at [https://doi.org/10.1016/S2468-1253\(21\)00031-5](https://doi.org/10.1016/S2468-1253(21)00031-5) on June 4, 2021.

Correspondence should be addressed to Dr. Soek-Siam Tan, soek.siam.tan@msf.org, or Dr. Sombat Thanprasertsuk, sombat.thanprasertsuk@msf.org, or Dr. Isabelle Andrieux-Meyer, isabelle.andrieux-meyer@msf.org.

Background In low-income and middle-income countries, affordable direct-acting antivirals are urgently needed to treat hepatitis C virus (HCV) infection. The combination of ravidasvir, a pangenotypic non-structural protein 5A (NS5A) inhibitor, and sofosbuvir has shown efficacy and safety in patients with chronic HCV genotype 4 infection. STORM-C-1 trial aimed to assess the efficacy and safety of ravidasvir plus sofosbuvir in a diverse population of adults chronically infected with HCV.

Methods STORM-C-1 is a two-stage, open-label, phase 2/3 single-arm clinical trial in its public academic and non-academic centres in Malaysia and four public academic and non-academic centres in Thailand. Patients with HCV with compensated cirrhosis (Metavir F4 and Child-Turcotte-Pugh class A) or without cirrhosis (Metavir F0–3) aged 18–69 years were eligible to participate, regardless of HCV genotype. HIV infection status, previous interferon-based HCV treatment, or source of HCV infection. Once daily ravidasvir (200 mg) and sofosbuvir (400 mg) were prescribed for 12 weeks for patients without cirrhosis and for 24 weeks for those with cirrhosis. The primary endpoint was sustained virological response at 12 weeks after treatment (SVR12; defined as HCV RNA <12 IU/mL in Thailand and HCV RNA <15 IU/mL in Malaysia at 12 weeks after the end of treatment). This trial is registered with ClinicalTrials.gov, number NCT02961426, and the National Medical Research Register of Malaysia, NMRR-16-747-2913.

Findings Between Sept 14, 2016, and June 5, 2017, 301 patients were enrolled in stage one of STORM-C-1. 98 (33%) patients had genotype 1a infection, 27 (9%) had genotype 1b infection, two (1%) had genotype 2 infection, 158 (52%) had genotype 3 infection, and 16 (5%) had genotype 6 infection. 81 (27%) patients had compensated cirrhosis, 90 (30%) had HIV co-infection, and 59 (19%) had received previous interferon-based treatment. The most common treatment-emergent adverse events were pyrexia (35 [12%]), cough (26 [9%]), upper respiratory tract infection (21 [8%]), and headache (20 [7%]). There were no deaths or treatment discontinuations due to serious adverse events related to study drugs. Of the 300 patients included in the full analysis set, 291 (97%: 95% CI 94–99) had SVR12. Of note, SVR12 was reported in 79 (96%) of 81 patients with cirrhosis and 153 (97%) of 158 patients with genotype 3 infection, including 51 (96%) of 53 patients with cirrhosis. There was no difference in SVR12 rates by HIV co-infection or previous interferon treatment.

Interpretation In this first stage, ravidasvir plus sofosbuvir was effective and well tolerated in this diverse adult population of patients with chronic HCV infection. Ravidasvir plus sofosbuvir has the potential to provide an additional affordable, simple, and efficacious public health tool for large-scale implementation to eliminate HCV as a cause of morbidity and mortality.

Funding National Science and Technology Development Agency, Thailand; Department of Disease Control, Ministry of Public Health, Thailand; Ministry of Health, Malaysia; UK Aid; Medicines Sans Frontières (MSF); MSF Transformational Investment Capacity; FIND; Pharmangiage; Starr International Foundation; Foundation for Art, Research, Partnership and Education; and the Swiss Agency for Development and Cooperation.

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Introduction About 71 million people have a chronic hepatitis C virus (HCV) infection globally, of whom approximately 399 000 die annually, mostly because of cirrhosis and hepatocellular carcinoma.¹ The WHO Global Health Sector Strategy on Viral Hepatitis 2016–21 aims to

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www.thelancet.com/gastrohep Vol 6 June 2021

COVID-19 Research, 2020–2022

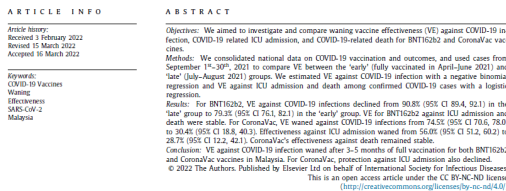
- **INCEPTION B:** Intent and Perception Towards COVID-19 Booster Vaccination Among Malaysians
- **VIGILANCE:** Post-COVID-19 Vaccination Immunogenicity Surveillance Among Healthcare Workers
- **RECoVAM:** The Real-World Evaluation of COVID-19 Vaccines Under the Malaysia National COVID-19 Immunisation Programme
- **SafeCoVAC:** Case-Based Monitoring of Adverse Events Following COVID-19 Vaccination
- **I-TECH:** Efficacy of Ivermectin Treatment on Disease Progression Among Adults With Mild to Moderate COVID-19 and Comorbidities
- **CODIQ-My:** COVID-19 Digital Quarantine and Home Monitoring



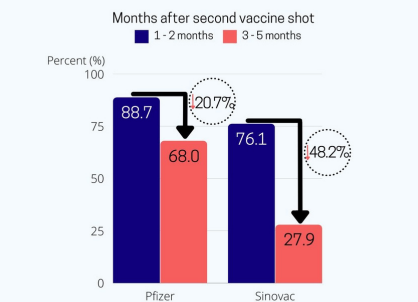
Waning COVID-19 Vaccine Effectiveness for BNT162b2 and CoronaVac in Malaysia: An Observational Study

Jing Lian Sual^{1,2,3,4}, Masliyana Husin^{1,2,3,4}, Peter Seah Keng Tok¹, Boon Hwa Tng¹, Theveth Thevananthan¹, Ee Veen Lo¹, Maheswara Rao Appannan¹, Faizah Muhamad Zin¹, Shahanim Mohd Zin¹, Hazlina Yahaya¹, Kalaiarasu M. Pearisamy¹, Sheamini Sivassampu¹

¹ Institute for Clinical Research, National Institutes of Health, Ministry of Health Malaysia, Setia Alam 40170 Malaysia
² Disease Control Division, Ministry of Health Malaysia, Putrajaya 62000 Malaysia
³ Medical Development Division, Ministry of Health Malaysia, Putrajaya 62000 Malaysia

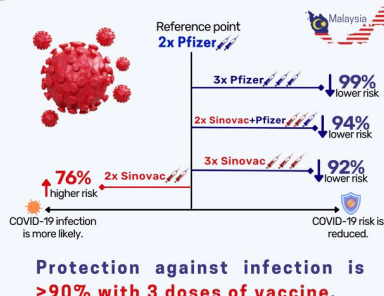


Protection against COVID-19 infection wanes 3–5 months after vaccination.



Effectiveness of COVID-19 vaccines against infections over time (in percent). Source: The Real-World Effectiveness of COVID-19 Vaccines under the Malaysia National COVID-19 Immunisation Program: RECoVAM (NMR-21-2761-56957)

Booster effectiveness against 2 doses of COVID-19 vaccine (in reference to 2 doses of Pfizer vaccine)



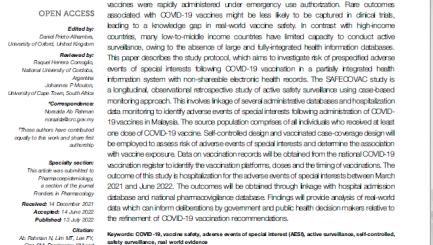
Source: The Real-World Effectiveness of COVID-19 Vaccines under the Malaysia National COVID-19 Immunisation Program: RECoVAM. Interpretive by Medical & Scientific Affairs, Institute for Clinical Research ICR/NIH



A Case-Based Monitoring Approach to Evaluate Safety of COVID-19 Vaccines in a Partially Integrated Health Information System: A Study Protocol

Norazida Ab Rahman^{1,2,3,4}, Ming Tsuy Lim^{1,2,3,4}, Fei Yee Lee^{1,2,3,4}, Su Min Ong^{1,2,3,4}

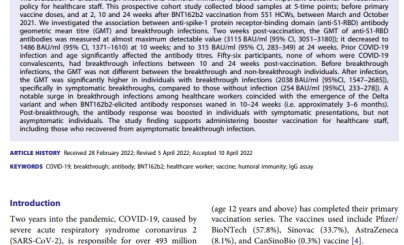
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COVID-19 breakthrough infections and humoral immune response among BNT162b2 vaccinated healthcare workers in Malaysia

Su Lan Yang^{1,2,3,4}, Adirata Mar Ripen^{1,2,3,4}, Chin Tho Leong^{1,2,3,4}, Jen Yen Lee^{1,2,3,4}, Chia Hwa Yen^{1,2,3,4}, Avinash Kumar Chand^{1,2,3,4}, Karina Koh^{1,2,3,4}, Nur Azeah Binti Abdul Rahim^{1,2,3,4}, Vimalakrishna Gokulavaran^{1,2,3,4}, Nik Nur Eliza binti Mohamad^{1,2,3,4}, Raj Kumar A.L. Sevilangan^{1,2,3,4}, Nadiah Sulaiman^{1,2,3,4}, Ahmad Kamal bin Ab Razak^{1,2,3,4}, Nurul Haslinda binti Mohd Nor^{1,2,3,4}, Mei Kuan Pong^{1,2,3,4}, Ket Yan Taf^{1,2,3,4}, Valerie Toh^{1,2,3,4}, Yuan Liang Woon^{1,2,3,4} and Kalaiarasu M. Pearisamy^{1,2,3,4}

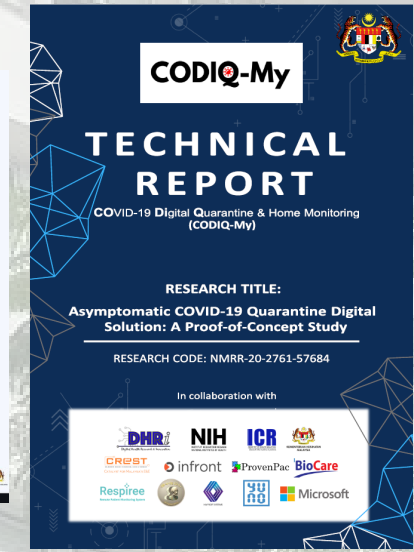
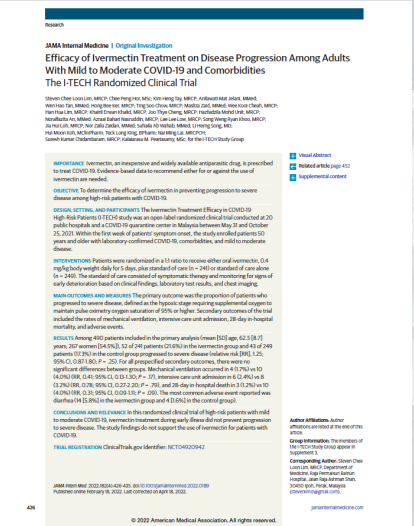
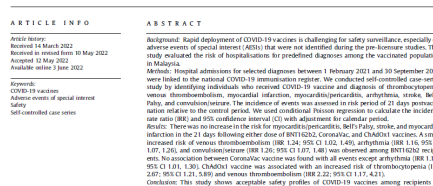
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Risk of serious adverse events after the BNT162b2, CoronaVac, and ChAdOx1 vaccines in Malaysia: A self-controlled case series study

Norazida Ab Rahman^{1,2,3,4}, Ming Tsuy Lim^{1,2,3,4}, Fei Yee Lee^{1,2,3,4}, Sing Cher Lee^{1,2,3,4}, Azuana Ramli^{1,2,3,4}, Siti Nurhafizah Saharudin^{1,2,3,4}, Teck Long King^{1,2,3,4}, Emeyre Bani Anak Jam^{1,2,3,4}, Nur Aliya Ayub^{1,2,3,4}, Raj Kumar Sevilangan^{1,2,3,4}, Rashidah Bahari^{1,2,3,4}, Nor Nadzirah Ibrahim^{1,2,3,4}, Fathiah Mahmud^{1,2,3,4}, Sheamini Sivassampu^{1,2,3,4}, Kalaiarasu M. Pearisamy^{1,2,3,4}, for the SAFECoVAC study group

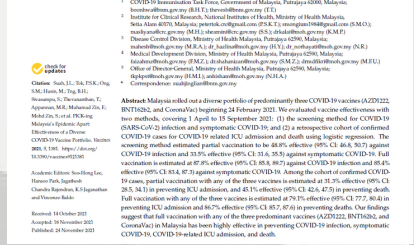
¹ Institute for Clinical Research, National Institutes of Health, Singapore, Malaysia; ² Disease Control Division, Ministry of Health, Singapore, Malaysia; ³ Medical Development Division, Ministry of Health, Singapore, Malaysia; ⁴ Singapore Institute of Health Sciences, Singapore, Malaysia



PICK-ing Malaysia's Epidemic Apart: Effectiveness of a Diverse COVID-19 Vaccine Portfolio

Jing Lian Sual^{1,2,3,4}, Peter Seah Keng Tok¹, Su Min Ong^{1,2,3,4}, Masliyana Husin^{1,2,3,4}, Boon Hwa Tng¹, Theveth Thevananthan¹, Ee Veen Lo¹, Maheswara Rao Appannan¹, Faizah Muhamad Zin¹, Shahanim Mohd Zin¹, Hazlina Yahaya¹, Nurul Huda¹, Mohd Fikri Ujang¹, Hishamuddin Mohd Ibrahim¹, Nour Hisham Abdullah¹, and Kalaiarasu M. Pearisamy^{1,2,3,4}

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ICR NURTURING RESEARCHERS

“You cannot hope to build a better world without improving the individuals. To that end, each of us must work for our own improvement and, at the same time, share a general responsibility for all humanity, our particular duty being to aid those to whom we think can be most useful.”

—Marie Curie



Training and Consultation



National Conference for Clinical Research (NCCR)

A premier annual event since 2007 with invaluable **knowledge-sharing and networking opportunities.**

A platform for healthcare professionals, policymakers, academics, and industries to interact.

The Dr. Wu Lien-Teh Research Awards: showcase and celebrate the efforts of aspiring researchers in Malaysia.

Objectives

- Seek better research options to develop new ventures.
- Discover, discuss, and disseminate clinical research information.
- Build bridges across clinical specialties and research areas.
- Be part of a multidisciplinary community, promoting clinical research in the Asia Pacific region.



Minister of Health officiating NCCR 2012 at Putra World Trade Center (PWTC) Kuala Lumpur.



Director-General of Health officiating NCCR 2013 at The Royale Chulan Kuala Lumpur.



Deputy Director-General of Health (R&TS) signing the NCCR 2009 guest book at G Hotel Penang.



Director of ICR delivering her speech at NCCR 2020 virtual conference.



Two Decades of NCCR

2007

Advancing Clinical Research

Promoting Clinical Research
in Asia

2008

2009

Expanding the Range of
Clinical Research in Malaysia

Advancing Medical Research:
The Next Stage

2010

2011

Trials, Registries, and Databases:
Many Angles, One Aim

Novel to Nobel—Better Research,
Better Doctors, Better Health

2012

2013

Translate & Transform

Research That Matters

2014

2015

Research Matters to Society

Big Data Driving Clinical
Research for Health

2016

2017

Precision Medicine—
The Future is Now

Patient-Centred Research:
Digital Health

2018

2021

Niche to Norm

Conference of Very Important
Disease (C.O.V.I.D)

2020

15th
NATIONAL
CONFERENCE
FOR CLINICAL
RESEARCH 2022

"Data to Decisions"



INVESTING IN ICR

"If you can't fly then run, if you can't run then walk, if you can't walk then crawl, but whatever you do you have to keep moving forward."

—Dr. Martin Luther King Jr

ICR Future Research

A Quantum Leap



- Personalise
 - Predictive
 - Preventive
 - Participatory
- e.g. Gene Therapy and Vaccine Development



- Big Data Analytics
- Internet of Medical Things (IoMT)
- Artificial Intelligence and Machine Learning—Integration with Precision Medicine and Clinical Trial Hub



- Clinical Trial Hospital with "Bench to Bedside" Concept
- Explore Traditional and Complimentary Medicine in Malaysia

ICR Diversified Workforce

The Researchers

Clinical Specialist

Public Health Specialist

Medical Officer

Pharmacist

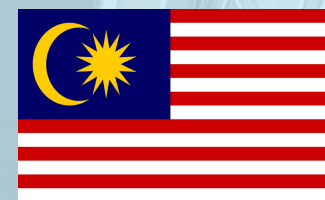
Nurse

Research Officer

Research Assistant

Worldwide Qualifications

- i. Post-Graduate Clinical Specialty Training
- ii. PhD
 - Clinical Epidemiology
 - Biostatistics
 - Microbiology
- iii. Master of Science
 - Genetics
 - Health Research
 - Data Science and Analytics
 - Social & Administrative Pharmacy
- iv. Master of Pharmacy
- v. Master of Clinical Research Methods
- vi. Master of Epidemiology (Pharmacoepidemiology)
- vii. Master of Medical Statistics
- viii. Master of Public Health
- ix. Master of Health Economics
- x. Master of International Health Policy
- xi. Master of Information System





ACKNOWLEDGEMENT AND APPRECIATION

*"What separates privilege from entitlement
is gratitude."*

—Dr. Brené Brown

We are grateful to YB Khairy Jamaluddin, the Minister of Health Malaysia for his encouragement towards ICR's growth.

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Our heartfelt appreciation also to everyone at ICR and The Network of CRCs for their contributions to this book.

"During my time at ICR, I learned about the commitment and resilience it takes to be part of a project, being responsible for keeping to timelines, keeping the morale of everyone going, and managing expectations whenever circumstances don't go the way we want them to. My experience also taught me the importance of having a common goal, planning, and communication in achieving objectives. And most importantly, I value the friendship and camaraderie built with fellow colleagues based on respect and transparency. I hope ICR continues to expand the opportunities for those seeking growth outside clinical career pathway."

Dr. Yasmin Wahab
Senior Medical Affairs Manager
Singapore GlaxoSmithKline Pte Ltd
Former ICR Researcher

"I joined ICR from August 2013 until October 2021. The eight years spent working in ICR was a fruitful journey. I was given many opportunities to learn and grow as a healthcare researcher in Malaysia. Most importantly the colleagues in ICR are always kind and helpful. And by working together, we managed to deliver outstanding projects and results that hopefully contributed to the nation. I will always cherish the time I had in ICR and the relationships I built during my time there. I wish ICR more wonderful years ahead, especially in delivering more impactful research to shape a better future of healthcare in Malaysia."

Ong Su Miin
Senior Real-World Evidence (RWE) Research Analyst
CONEXTS, Novartis
Former ICR Researcher

"Congratulations, ICR for a fruitful 22 years! I wish that ICR continues to play a leading role in healthcare research, generating timely and relevant evidence to help our policymakers in advancing our healthcare system. I also would like to thank ICR for all the learning opportunities given. They have certainly helped me in building my skills, deepen my knowledge, and broaden my experience. The experience I have gained in ICR has certainly been one of the most valuable assets in my professional career as well as personal development. Of course, not to forget our team and our leaders whom I truly enjoy working with. I miss the lunchtime chat!"

Dr. Foo Chee Yoong
Associate Principal
IQVIA Health Economics and Outcome Research
Former ICR Researcher

"I had a great experience with ICR during the early stage of my career. I met many amazing colleagues, who are passionate about research and making an impact in policy, from whom I learned much. Thank you, ICR, and Happy 22nd Anniversary! Wishing you and fellow staff members more success and greater heights in the years to come =D"

Dr. Lim Ka Keat
Research Fellow in Health Economics
King's College London
Former ICR Researcher

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